Pending Claims:

1. **(Original)** A device, comprising:

a compliant first layer configured to engage internal vasculature;

a second layer coupled to the first layer, the second layer having a stiffness greater than a stiffness of the first layer; and

the first layer and the second layer defining a cavity therebetween, the cavity having a volume wherein the first layer is configured to be deformed in response to a change in the volume of the cavity.

2. **(Original)** The device of claim 1 wherein the first layer is selectively radially deformed in response to a change in the volume of the cavity.

3. **(Original)** The device of claim 1, wherein the first layer is fabricated with a first material and the second layer is fabricated with a second material.

4. **(Original)** The device of claim 3, wherein the first material is a first silicone elastomer and the second material is a second silicone elastomer.

5. **(Original)** The device according to claim 1 wherein a portion of the device is coated with a tissue growth inducing polymeric material.

6. **(Original)** The device according to claim 5 wherein the tissue growth inducing material is one of poly-L-lysine and poly-D-lysine.

7. **(Original)** The device of claim 4, wherein the first silicone elastomer is a 5-50 A silicone elastomer having a minimum of 500% elongation.

8. **(Original)** The device of claim 4, wherein the second silicone elastomer is a 65-95 A silicone elastomer having less than a 400% elongation.

9. **(Original)** The device of claim 1 wherein the second layer further comprises a reinforcement element coupled to the second layer such that the reinforcement element is configured to maintain the length and width of the second layer.

10. **(Original)** The device of claim 4, wherein the first material is an elastomer that has hardness of 5-50 shore A and having a minimum elongation of 500%.

11. **(Original)** The device of claim 4, wherein the second material is an elastomer that has hardness of 65-95 shore A and having a maximum elongation of 400%.

12. **(Original)** The device of claim 9, wherein the reinforcement element is fabricated from at least one of polyester, nylon, para-aramid fiber, stainless steel, platinum, superelastic nitinol and alloys of nickel and titanium.

13. **(Original)** The device of claim 3, wherein the first and second material are one of silicone, neoprene and copolymers comprising styrene and butadiene.

14. **(Original)** The device of claim 1, wherein the first layer is coupled to the second layer about a perimeter of the first layer.

15. **(Original)** The device of claim 1, wherein the first layer is coupled to the second layer about a portion of the perimeter of the second layer.

16. **(Original)** The device of claim 14, wherein a perimeter of the second layer extends beyond the perimeter of the first layer.

17. **(Original)** The device of claim 1, the second layer further comprising a length and a width, the first layer further comprising a length and a width, wherein the length of the first layer is less than the length of the second layer.

18. **(Original)** The device of claim 17, wherein the width of the first layer is less than the width of the second layer.

19. **(Original)** The device of claim 17 wherein the length of the second layer is sufficient for the second layer to completely encircle a portion of a blood vessel.

20. **(Original)** The device of claim 19 having a second layer further comprising a fist end and a second end wherein when the second layer is configured to completely encircle a portion of a blood vessel, the first end and the second end of the second layer overlap.

21. **(Original)** The device of claim 19 wherein the portion of the blood vessel comprises the ascending aorta.

22. **(Original)** The device of claim 19 wherein the portion of the blood vessel comprises the descending aorta.

23. **(Original)** The device of claim 19 wherein the portion of the blood vessel comprises a set of intercostal arteries or a set of intercostal veins.

24. **(Original)** The device of claim 19, wherein the portion of the blood vessel comprises the superior vena cava.

25. **(Original)** The device of claim 19, wherein the portion of the blood vessel comprises the inferior vena cava.

26. **(Original)** The device of claim 1 wherein the second layer further comprising a first end and a second end, wherein each of the first end and the second end have at least two tabs, each of the tabs in the at least two tabs has a width wherein the sum of the widths of all the tabs in the at least two tabs on the first end is less than the width of the device.

27. **(Original)** The device of claim 26, wherein the at least two tabs on the first and second ends are configured to be removably coupled such that the device is reconfigurable between a first configuration in which the at least two tabs on the first and second ends are separate and a second configuration in which the at least two tabs on the first and second ends are coupled.

28. **(Original)** The device of claim 26 wherein a tab spacing profile is provided between adjacent tabs in the at least two tabs, the tab spacing profile having a width wherein the sum of the tab spacing profile widths and the widths of all of the tabs in the at least two tabs equals the width of the device.

29. **(Original)** The device of claim 28 wherein the tab spacing profile between each of the tabs in the at least two tabs is the same.

30. **(Original)** The device of claim 28 having at least two different tab spacing profiles.

31. **(Original)** The device of claim 26 wherein when the device is disposed about a blood vessel in a body at least one of the two or more tabs of the first end is coupled to at least one of the two or more tabs on the second end.

32. **(Original)** The device of claim 28, wherein the tab widths and tab spacing profiles are selected such that when the at least one tab on the first end is coupled to at least one tab on the second end the device encircles a portion of a blood vessel and a side branch coupled to the blood vessel without restricting blood flow into or from the side branch.

33. **(Original)** The device of claim 32, wherein the portion of a blood vessel and a side branch comprises the descending aorta and at least one set of intercostal arteries.

34. **(Original)** The device of claim 32, wherein the portion of a blood vessel and a side branch comprises the inferior vena cava and at least one set of intercostal veins.

35. **(Original)** The device of claim 20, wherein the second layer first and second ends are configured to be removably coupled such that the device is reconfigurable between a first configuration in which the first and second ends are separate and a second configuration in which the first and second ends are coupled.

36. **(Original)** The device of claim 1 wherein the perimeter of the first layer perimeter defines a first shape and the perimeter of the second layer defines a second shape.

37. **(Original)** The device of claim 36 wherein the first shape is similar to the second shape.

38. **(Original)** The device of claim 36 wherein the second shape is rectangular and first shape is a different shape than the second shape.

39. **(Original)** The device of claim 1 further comprising an expandable bladder having a volume and disposed within the cavity and configured such that the first layer is deformed in response to a change in volume of the bladder.

40. **(Withdrawn)** A device, comprising:

an expandable layer configured to engage internal vasculature;

a cover layer coupled to the expandable layer and having a length and a width, the expandable layer and the cover layer defining a cavity therebetween, the cavity having a volume, the cover layer defining an opening in fluid communication with the cavity; and

a reinforcement element coupled to the cover layer and configured to maintain the length and width of the cover layer, wherein, the expandable layer is configured to be selectively deformed in response to a change in the volume of the cavity.

41. **(Withdrawn)** The device of claim 40, wherein selectively deformed is a deformation that is radially selective.

42. **(Withdrawn)** The device of claim 40, selectively deformed is a deformation that is longitudinally selective.

43. **(Withdrawn)** The device of claim 40, wherein the first layer is fabricated with a first material having a first stiffness and the second layer is fabricated with a second material having a second stiffness.

44. **(Withdrawn)** The device of claim 43 wherein the second stiffness is greater than the first stiffness.

45. **(Withdrawn)** The device of claim 44, wherein the first material is a first silicone elastomer and the second material is a second silicone elastomer.

46. **(Withdrawn)** The device of claim 45, wherein the first silicone elastomer is a 5-50 A silicone elastomer having a minimum of 500% elongation.

47. **(Withdrawn)** The device of claim 45, wherein the second silicone elastomer is a 65-95 A silicone elastomer having less than a 400% elongation.

48. **(Withdrawn)** The device of claim 40, wherein the reinforcement element is at least one of polyester, nylon, para-aramid fiber, stainless steel, platinum, superelastic nitinol and alloys of nickel and titanium.

49. **(Withdrawn)** The device of claim 45, wherein the first material is an elastomer that has hardness of 5-50 shore A and having a minimum elongation of 500%.

50. **(Withdrawn)** The device of claim 45, wherein the second material is an elastomer that has hardness of 65-95 shore A and having a maximum elongation of 400%.

51. **(Withdrawn)** The device of claim 43, wherein the first material and second material are one of silicone, neoprene and copolymers comprising styrene and butadiene.

52. **(Withdrawn)** The device of claim 40, wherein the device is reconfigurable between a first, substantially planar configuration and a second, substantially tubular configuration.

53. **(Withdrawn)** The device of claim 52, further comprising a connection member joining a first portion of the cover layer to a second portion of the cover layer when the device is in the second configuration.

54. **(Withdrawn)** The device of claim 40, wherein the cover layer includes a first end and a second end, said first end and said second end configured to be removably coupled such that the device is reconfigurable between a first configuration in which the first and second ends are separate and a second configuration in which the first and second ends are coupled.

55. **(Withdrawn)** The device of claim 54 wherein when the first end and the second end are coupled the first end and the second end are in an overlapping configuration that encircles a portion of a blood vessel.

56. **(Withdrawn)** The device of claim 55 wherein the portion of the blood vessel comprises the ascending aorta.

57. **(Withdrawn)** The device of claim 55 wherein the portion of the blood vessel comprises the descending aorta.

58. **(Withdrawn)** The device of claim 55 wherein the portion of the blood vessel comprises a set of intercostal arteries or a set of intercostal veins.

59. **(Withdrawn)** The device of claim 55, wherein the portion of the blood vessel comprises the superior vena cava.

60. **(Withdrawn)** The device of claim 55, wherein the portion of the blood vessel comprises the inferior vena cava.

61. **(Withdrawn)** The device of claim 40 wherein the cover layer further comprises a first end and a second end, wherein each of the first end and the second end have at least two tabs, each of the tabs in the at least two tabs has a width wherein the sum of the widths of all the tabs in the at least two tabs on the first end is less than the width of the device.

62. **(Withdrawn)** The device of claim 61, wherein the at least two tabs on the first and second ends are configured to be removably coupled such that the device is reconfigurable between a first configuration in which the at least two tabs on the first and second ends are separate and a second configuration in which the at least two tabs on the first and second ends are coupled.

63. **(Withdrawn)** The device of claim 61 wherein a tab spacing profile is provided between adjacent tabs in the at least two tabs, the tab spacing profile having a width wherein the sum of the tab spacing profile widths and the widths of all of the tabs in the at least two tabs equals the width of the device.

64. **(Withdrawn)** The device of claim 63 wherein the tab spacing profile between each of the tabs in the at least two tabs is the same.

65. **(Withdrawn)** The device of claim 63 having at least two different tab spacing profiles.

66. **(Withdrawn)** The device of claim 61 wherein when the device is disposed about a blood vessel in a body at least one of the two or more tabs of the first end is coupled to at least one of the two or more tabs on the second end.

67. **(Withdrawn)** The device of claim 63, wherein the tab widths and tab spacing profiles are selected such that when the at least one tab on the first end is coupled to at least one tab on the

second end the device encircles a portion of a blood vessel and a side branch coupled to the blood vessel without restricting blood flow into or from the side branch.

68. **(Withdrawn)** The device of claim 67, wherein the portion of a blood vessel and a side branch comprises the descending aorta and at least one set of intercostal arteries.

69. **(Withdrawn)** The device of claim 67, wherein the portion of a blood vessel and a side branch comprises the inferior vena cava and at least one set of intercostal veins.

70. **(Withdrawn)** The device of claim 54, wherein the first end and the second end include cooperating portions of a mating fastener.

71. **(Withdrawn)** The device of claim 54, wherein the first end and the second end are configured to be sewn together.

72. **(Withdrawn)** The device of claim 70, wherein the mating fasteners are magnets.

73. **(Withdrawn)** The device of claim 70, wherein at least one of the mating fasteners is magnetic.

74. **(Withdrawn)** The device of claim 70, wherein a one the mating fasteners is a magnet and the other mating fastener is formed from a magnetically attractive material.

75. **(Withdrawn)** The device of claim 70, wherein the mating fasteners are opposite sides of a buckle.

76. **(Withdrawn)** The device of claim 70, wherein the mating fasteners are a screw and a screw-receiving opening.

77. **(Withdrawn)** The device of claim 70 wherein the mating fasteners are a hook and a loop.

78. **(Withdrawn)** The device of claim 70 wherein the mating fasteners comprise a plurality of hooks and a plurality of loops.

79. **(Withdrawn)** The device of claim 70 wherein the mating fasteners include a locking ring and a mating element.

80. **(Withdrawn)** The device of claim 70 wherein the mating fasteners include a positive-locks.

81. **(Withdrawn)** The device of claim 40, further comprising:

a conduit coupled to the second layer in communication with the opening, the conduit configured to be coupled to a pump.

82. **(Withdrawn)** The device of claim 81 wherein one of a fluid is configured to be selectively communicated in synchronization with the cardiac cycle to the cavity via a conduit in communication with the opening in the cover layer.

83. **(Withdrawn)** A vascular assist device configured to be coupled to at least a portion of a blood vessel, the device comprising:

a vascular engaging layer;

an expandable layer,

a cover layer; and

the device having an uninstalled configuration and an installed configuration;

wherein,

the vascular engaging layer is disposed between the outer wall of the blood vessel and the expanding layer,

the cover layer and the expanding layer are coupled so as to form a cavity therebetween, the cavity being bounded by the expanding layer and the cover layer;

the cover layer having an opening formed therein, the opening being in communication with the cavity and the cavity being configured to selectively receive a fluid via the opening whereby the fluid causes the volume of the cavity to change wherein the change in cavity volume causes the expanding layer to deform more than the cover layer to accommodate the change in cavity volume.

84. **(Withdrawn)** A vascular assist device according to claim 83 wherein the vascular engaging layer is sufficiently long to encircle a portion of the blood vessel.

85. **(Withdrawn)** A vascular assist device according to claim 83 wherein the expandable layer is sufficiently long to at least partially encircle a portion of the blood vessel.

86. **(Withdrawn)** A vascular assist device according to claim 83 wherein the vascular engaging layer is coupled to the expandable layer.

87. **(Withdrawn)** The device of claim 83, wherein the vascular engaging layer is fabricated with a first material, the expanding layer is fabricated with second material and the cover layer is fabricated with a third material different from the first and second material.

88. **(Withdrawn)** The device of claim 83, wherein the vascular engaging layer is a vascular graft.

89. **(Withdrawn)** The device of claim 88, wherein the vascular graft is made from a polymer selected from the group consisting of: polyester, nylon, polytetrafluoroethylene and polyvinylidene fluoride.

90. **(Withdrawn)** The device of claim 83, wherein the second material is a first silicone elastomer and the third material is a second silicone elastomer.

91. **(Withdrawn)** The device of claim 83, wherein the cover layer further comprises a reinforcement element selected from the group consisting of: polyester, nylon, para-aramid fiber, stainless steel, platinum, superelastic nitinol and alloys of nickel and titanium.

92. **(Withdrawn)** The device of claim 83 wherein the expanding layer and the cover layer are fabricated from a material selected from the group consisting of: silicone, neoprene, copolymers comprising styrene and copolymers comprising butadiene.

93. **(Withdrawn)** The device of claim 83, wherein the perimeter of the expanding layer is coupled to the cover layer.

94. **(Withdrawn)** The device of claim 93, wherein the perimeter of the expanding layer aligns with a portion of the perimeter of the cover layer.

95. **(Withdrawn)** The device of claim 83, wherein the device is repeatably configurable between the uninstalled configuration and the installed configuration.

96. **(Withdrawn)** The device of claim 95 wherein the cover layer further comprises at least one pair of cooperative fastening elements.

97. **(Withdrawn)** The device of claim 96 wherein when the device is in the uninstalled configuration the at least one pair of cooperative fastening elements are uncoupled.

98. **(Withdrawn)** The device of claim 96 wherein when the device is in the installed configuration the at least one pair of cooperative fastening elements are coupled.

99. **(Withdrawn)** The device of claim 96 wherein one of the fastening elements in the at least one pair of cooperative fastening elements comprises a plurality of fastening positions such that the size of the device in the installed configuration may be adjusted by changing to which of said plurality of fastening positions the other fastening element is coupled.

100. **(Withdrawn)** The device of claim 83 wherein the cover layer includes a first end and a second end, said first end and said second end configured to be removeably coupled such that the

device is reconfigurable between an uninstalled configuration in which the first and second ends are separate and an installed configuration in which the first and second ends are coupled.

101. **(Withdrawn)** The device of claim 83 wherein the device is maintained in an installed configuration about a portion of a blood vessel by suturing a first portion of the vascular engaging layer to a second portion of the vascular engaging layer.

102. **(Withdrawn)** The device according to claim 83 wherein a portion of the device is coated with a tissue growth inducing polymeric material.

103. **(Withdrawn)** The device according to claim 102 wherein the tissue growth inducing polymeric material is one of poly-L-lysine and poly-D-lysine.

104. **(Withdrawn)** A vascular assist device configured to be coupled to at least a portion of a blood vessel, the device comprising:

a vascular engaging layer having a first stiffness;

a cover layer having a second stiffness that is greater than the first stiffness and being coupled to the vascular engaging layer such that a portion of the cover layer extends past at least a portion of the perimeter of the vascular engaging layer; the cover layer and the vascular engaging layer forming a cavity therebetween, the cover layer having an opening formed therein in communication with the cavity, the cavity being configured to selectively receive a fluid via the opening; and

the device having an uninstalled configuration and an installed configuration.

105. **(Withdrawn)** A vascular assist device according to claim 104 wherein the vascular engaging layer is sufficiently long to at least partially encircle a portion of the aorta.

106. **(Withdrawn)** A vascular assist device according to claim 104 wherein the vascular engaging layer is sufficiently long to at least partially encircle a portion of the vena cava.

107. **(Withdrawn)** The device of claim 104, wherein the vascular engaging layer is fabricated with a first material and the cover layer is fabricated with a second material different from the first material.

108. **(Withdrawn)** The device of claim 107, wherein the first material is a first silicone elastomer and the second material is a second silicone elastomer.

109. **(Withdrawn)** The device of claim 104, wherein the cover layer further comprises a reinforcement element selected from the group consisting of: polyester, nylon, para-aramid fiber, stainless steel, platinum, superelastic nitinol and alloys of nickel and titanium.

110. **(Withdrawn)** The device of claim 107, wherein the first and second material are one of silicone, neoprene, copolymers comprising styrene and copolymers comprising butadiene silicone, neoprene and copolymers comprising styrene and butadiene.

111. **(Withdrawn)** The device of claim 104, wherein the perimeter of the vascular engaging layer is coupled to the cover layer.

112. **(Withdrawn)** The device of claim 111, wherein the perimeter of the vascular engaging layer aligns with a portion of the perimeter of the cover layer.

113. **(Withdrawn)** The device of claim 111, wherein the perimeter of the cover layer extends beyond the perimeter of the vascular layer.

114. **(Withdrawn)** The device of claim 104, wherein the device is repeatably configurable between the uninstalled configuration and the installed configuration.

115. **(Withdrawn)** The device of claim 114 wherein the cover layer further comprises at least one pair of cooperative fastening elements.

116. **(Withdrawn)** The device of claim 115 wherein when the device is in the uninstalled configuration the at least one pair of cooperative fastening elements are uncoupled.

117. **(Withdrawn)** The device of claim 115 wherein when the device is in the installed configuration the at least one pair of cooperative fastening elements are coupled.

118. **(Withdrawn)** The device of claim 115 wherein one of the fastening elements in the at least one pair of cooperative fastening elements comprises a plurality of fastening positions such that the size of the device in the installed configuration may be adjusted by changing to which of said plurality of fastening positions the other fastening element is coupled.

119. **(Withdrawn)** The device of claim 104 wherein the cover layer includes a first end and a second end , said first end and said second end configured to be removeably coupled such that the device is reconfigurable between an uninstalled configuration in which the first and second ends are separate and an installed configuration in which the first and second ends are coupled.

120. **(Withdrawn)** The device according to claim 104 wherein a portion of the device is coated with a tissue growth inducing polymeric material.

121. **(Withdrawn)** The device according to claim 120 wherein the tissue growth inducing polymeric material is one of poly-L-lysine and poly-D-lysine.

122. **(Original)** A system, comprising:

a pump having a controller configured to receive a signal associated with the cardiac cycle of a heart;

a cuff comprising,

a compliant first layer configured to engage internal vasculature; a second layer coupled to the first layer and having a stiffness greater than a stiffness of the first layer and having an opening formed therein; the compliant first layer and the second layer being coupled to form a cavity bounded by the first layer and the second layer, the cavity being in communication with the opening in the second layer; and

a conduit coupled between the opening and the pump, the conduit configured to convey a fluid between the pump and the cavity thereby causing deformation of the first layer by expanding and contracting the cavity.

123. **(Original)** The system of claim 122 wherein the signal associated with the cardiac cycle is related to systole.

124. **(Original)** The system of claim 122 wherein the signal associated with the cardiac cycle is related to diastole.

125. **(Original)** The system of claim 122 wherein the signal associated with the cardiac cycle is related to a change in aortic pressure.

126. **(Original)** The system of claim 122 wherein the signal associated with the cardiac cycle is related to a change in arterial pressure.

127. **(Original)** The system of claim 122 wherein the signal associated with the cardiac cycle is related to a change in venous pressure.

128. **(Original)** The system of claim 122 wherein the pump is a pulsitile pump.

129. **(Original)** The system of claim 122 wherein the pump, cuff and conduit are implantable within a human body.

130. **(Original)** The system of claim 122 further comprising a sensor configured to generate a signal associated with the cardiac cycle of a heart.

131. **(Original)** The system of claim 130 herein the sensor is a pressure sensor.

132. **(Original)** The system of claim 131 wherein the sensor is part of the cuff.

133. **(Original)** The system of claim 130 wherein the sensor is an electrical sensor.

134. **(Original)** The system of claim 133 wherein the sensor is part of the cuff.

135. **(Original)** The system of claim 122 wherein the second layer includes a first end and a second end, said first end and said second end configured to be removeably coupled such that the cuff is reconfigurable between an uninstalled configuration in which the first and second ends are separate and an installed configuration in which the first and second ends are coupled.

136. **(Original)** The system of claim 135 wherein the installed configuration comprises a plurality of coupling positions whereby the size of the cuff may be adjusted by changing into which one of the plurality of coupling positions the first and second ends are coupled.

137. **(Original)** The system of claim 122, wherein the first layer is fabricated with a first material and the second layer is fabricated with a second material different from the first material.

138. **(Original)** The device of claim 122 wherein the second layer further comprising a first end and a second end, wherein each of the first end and the second end have at least two tabs, each of the tabs in the at least two tabs has a width wherein the sum of the widths of all the tabs in the at least two tabs on the first end is less than the width of the cuff.

139. **(Original)** The device of claim 138, wherein the at least two tabs on the first and second ends are configured to be removably coupled such that the device is reconfigurable between a first configuration in which the at least two tabs on the first and second ends are separate and a second configuration in which the at least two tabs on the first and second ends are coupled.

140. **(Original)** The device of claim 138 wherein a tab spacing profile is provided between adjacent tabs in the at least two tabs, the tab spacing profile having a width wherein the sum of the tab spacing profile widths and the widths of all of the tabs in the at least two tabs equals the width of the device.

141. **(Original)** The device of claim 140 wherein the tab spacing profile between each of the tabs in the at least two tabs is the same.

142. **(Original)** The device of claim 140 having at least two different tab spacing profiles.

143. **(Original)** The device of claim 138 wherein when the device is disposed about a blood vessel in a body at least one of the two or more tabs of the first end is coupled to at least one of the two or more tabs on the second end.

144. **(Original)** The device of claim 140, wherein the tab widths and tab spacing profiles are selected such that when the at least one tab on the first end is coupled to at least one tab on the second end the device encircles a portion of a blood vessel and a side branch coupled to the blood vessel without restricting blood flow into or from the side branch.

145. **(Original)** The device of claim 144, wherein the portion of a blood vessel and a side branch comprises the descending aorta and at least one set of intercostal arteries.

146. **(Original)** The device of claim 144, wherein the portion of a blood vessel and a side branch comprises the inferior vena cava and at least one set of intercostal veins.

147. **(Original)** The system of claim 122, wherein the conduit further comprises a first end configured to have a single lumen and a second end configured to have a plurality of lumens.

148. **(Original)** The system of claim 147, wherein each lumen has the same diameter.

149. **(Original)** The system of claim 147, wherein at least one lumen has a diameter different from the diameter of another lumen.

150. **(Original)** The system of claim 122, wherein the cavity is coupled to a plurality of conduits.

151. **(Original)** The system of claim 150, wherein one of the plurality of conduits supplies fluid from the pump to the cavity.

152. **(Original)** The system of claim 151, wherein another one of the plurality of conduits returns fluid from the cavity to the pump.

153. **(Original)** The system of claim 122, wherein the conduit has a first diameter adjacent to the opening and a second different diameter at a point distal to the opening.

154. **(Original)** The system of claim 122, wherein the conduit comprises a plurality of conduits wherein at least one of the conduits in the plurality of conduits has a diameter that is different from the diameter of at least one other of the plurality of conduits.

155. **(Original)** The system of claim 137, wherein the first material is a first silicone elastomer and the second material is a second silicone elastomer.

156. **(Original)** The system of claim 122 wherein the fluid is a liquid is selected from the group consisting of: saline, water, glycols, a combination comprising a glycol and saline and a combination comprising a glycol and water.

157. **(Original)** The system of claim 122 wherein the fluid is a gas that is chemically inert with the first and second layers.

158. **(Original)** The system of claim 157 wherein the fluid is a gas that is one of either carbon dioxide or nitrogen.

159. **(Original)** The system of claim 122 wherein the fluid is a gas having lower density than air.

160. **(Original)** The system of claim 159 wherein the gas is helium.

161. **(Original)** The system of claim 122 further comprising a fluid volume compensator.

162. **(Original)** The system of claim 161 wherein the fluid compensator is disposed in a fluid flow path between the pump and the cavity.

163. **(Original)** The system of claim 161 wherein the fluid compensator is configured to adjust the fluid volume ported into the cavity during activation of the cuff.

164. **(Original)** The system of claim 161 wherein the fluid compensator is configured to allow replenishment of the fluid in the system.

165. **(Original)** The system of claim 122 wherein a surface of one of the cuff, conduit and pump in contact with the fluid are coated with a material to enhance lubricity.

166. **(Original)** The system of claim 122 wherein a surface of one of the cuff, conduit and pump in contact with the fluid is coated with a material to reduce fluid evaporation.

167. **(Original)** The system of claim 122 wherein an interior surface of one of the cuff, conduit and pump is coated with a material to reduce fluid loss.

168. **(Original)** The system of claim 122 wherein a surface of one of the cuff, conduit and pump is coated with a material to reduce fluid loss.

169. **(Original)** The system of claim 122 wherein the condiut further comprises a reinforcement element.

170. **(Original)** The system of claim 169 wherein the reinforcement element is selected from the group consisting of: polyester, nylon, para-aramid fiber, stainless steel, platinum, superelastic nitinol and alloys of nickel and titanium.

171. **(Withdrawn)** A method for augmenting blood flow in a patient body using a cuff formed from a first layer joined to a second layer so that a cavity exists between the layers such that filling the cavity preferentially deforms the first layer, the method comprising:
detecting a first cardiac cycle trigger,
porting a fluid into the cavity so as to elastically deform the first layer thereby compressing a blood vessel in response to the first cardiac cycle trigger; and
porting a fluid out of the cavity in response to a second cardiac cycle trigger.

172. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 171 wherein the first cardiac trigger is related to an ECG of the patient.

173. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 171 wherein the first cardiac trigger is related to the increasing portion of the R-wave.

174. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 173 wherein the first cardiac trigger occurs at 90% of the increasing R-wave amplitude.

175. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 171 wherein the first cardiac trigger is related to the ECG of the patient and selected so that the step of porting a fluid into the cavity so as to elastically deform the first layer coincides with the ventricular systole.

176. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 171 wherein the second cardiac cycle trigger is a predetermined time limit.

177. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 171 wherein the second cardiac cycle trigger is based on the R-R interval.

178. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 171 wherein the second cardiac cycle trigger is related to aortic pressure.

179. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 171 wherein the first and the second cardiac cycle triggers are selected to operate the cuff in copulsation mode.

180. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 171 wherein the cavity inflates during the ventricular systole of the heart.

181. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 171 wherein the first cardiac trigger is related to the Q-T interval.

182. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 171 wherein the first cardiac trigger is related to the decreasing portion of the T-wave.

183. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 182 wherein the first cardiac trigger occurs at the end of the T-wave.

184. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 171 wherein the first cardiac trigger is related to the T-wave and selected so that the step of porting a fluid into the cavity so as to elastically deform the first layer coincides with the ventricular diastole.

185. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 181 wherein the second cardiac cycle trigger is a predetermined time limit.

186. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 181 wherein the second cardiac cycle trigger is based on the R-R interval.

187. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 181 wherein the second cardiac cycle trigger is related to aortic pressure.

188. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 171 wherein the first and the second cardiac cycle triggers are selected to operate the cuff in counterpulsation mode.

189. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 171 wherein the cavity inflates during the ventricular diastole of the heart.

190. **(Withdrawn)** A method for augmenting blood flow in a body using a cuff formed from a first layer joined to a second layer so that a cavity exists between the layers such that filling the cavity preferentially deforms the first layer, the method comprising:

detecting a cardiac cycle trigger;

porting a fluid into the cavity so as to elastically deform the first layer thereby compressing a blood vessel in response to the cardiac cycle trigger; holding the vessel compressed for known duration and

porting a fluid out of the cavity at the end of the duration in order to allow the vessel to relax.

191. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 190 wherein the cardiac trigger is related to the ECG.

192. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 190 wherein the cardiac trigger is related to the increasing portion of the R-wave of the ECG.

193. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 192 in a coplusation manner wherein the first cardiac trigger occurs at 90% of the increasing R-wave amplitude.

194. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 190 in a coplusation manner wherein the cardiac trigger is related to the aortic pressure and selected so that the step of porting a fluid into the cavity so as to elastically deform the first layer coincides with the ventricular systole.

195. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 190 in counterpulsation manner, wherein the cardiac trigger is related to detecting R-wave of the ECG, computing the Q-T interval and triggering the pump to coincide with the end of the T-wave for porting the fluid into the cavity so as to elastically deform the first layer and compress the blood vessel.

196. **(Withdrawn)** A method for augmenting blood flow in a body according to claim 190 in counterpulsation manner, wherein the cardiac trigger is related to detecting the peak aortic pressure and computing the duration for the aortic valve to close and triggering the pump for porting the fluid into the cavity so as to elastically deform the first layer and compress the blood vessel to coincide with the aortic valve closing.

197. **(Withdrawn)** A method for augmenting blood flow in a vessel of a patient using a cuff having a compliant first layer that at least partially encircles a vessel adjacent the cuff, a second layer coupled to the first layer, the first layer and the second layer defining a cavity therebetween, the method comprising:

changing the pressure of a fluid in the cavity based on a signal associated with the cardiac cycle;

deforming the first layer in response to the changing pressure of the fluid in the cavity; and

deforming the walls of a vessel at least partially encircled by the first layer in response to the deforming of the first layer.

198. **(Withdrawn)** A method for augmenting blood flow in a vessel according to claim 197 wherein the signal associated with the cardiac cycle is related to the ECG of the patient.

199. **(Withdrawn)** A method for augmenting blood flow in a vessel according to claim 197 wherein the signal associated with the cardiac cycle is related to the increasing portion of the R-wave.

200. **(Withdrawn)** A method for augmenting blood flow in a vessel according to claim 197 wherein the signal associated with the cardiac cycle is related to the ECG of the patient and selected so that the step of deforming the walls of a vessel at least partially encircled by the first layer in response to the deforming of the first layer coincides with the ventricular systole.

201. **(Withdrawn)** A method for augmenting blood flow in a vessel according to claim 197 wherein the signal associated with the cardiac cycle is related to aortic pressure.

202. **(Withdrawn)** A method for augmenting blood flow in a vessel according to claim 197 wherein the changing the pressure of a fluid in the cavity is selected such that the blood flow in the vessel is augmented in a copulsation mode.

203. **(Withdrawn)** A method for augmenting blood flow in a vessel according to claim 197 wherein the changing the pressure of a fluid in the cavity is occurring so that the pressure in the cavity is increasing during the ventricular systole of the heart.

204. **(Withdrawn)** A method for augmenting blood flow in a vessel according to claim 197 wherein the signal associated with the cardiac cycle is related to the Q-T interval.

205. **(Withdrawn)** A method for augmenting blood flow in a vessel according to claim 197 wherein the signal associated with the cardiac cycle is related to the decreasing portion of the T-wave.

206. **(Withdrawn)** A method for augmenting blood flow in a vessel according to claim 197 wherein the signal associated with the cardiac cycle occurs at the end of the T-wave.

207. **(Withdrawn)** A method for augmenting blood flow in a vessel according to claim 197 wherein the signal associated with the cardiac cycle is related to the T-wave and selected so that the step of changing the pressure of a fluid in the cavity coincides with the ventricular diastole.

208. **(Withdrawn)** A method for augmenting blood flow in a vessel according to claim 197 wherein the changing the pressure of a fluid in the cavity is selected such that the blood flow in the vessel is augmented in a counterpulsation mode.

209. **(Withdrawn)** A method for augmenting blood flow in a vessel according to claim 197 wherein the changing the pressure of a fluid in the cavity is occurring so that the pressure in the cavity is increasing during the ventricular diastole of the heart.

210. **(Withdrawn)** A method for augmenting blood flow in a vessel according to claim 197 wherein increasing the pressure in the cavity results in deforming the first layer so as to constrict the vessel.

211. **(Withdrawn)** A system, comprising:

a plurality of cuffs, each of the plurality of cuffs including

a compliant first layer configured to engage internal vasculature;

a second layer coupled to the first layer, the first layer and the second layer defining a cavity therebetween, the second layer defining an opening in communication with the cavity; and

a connector configured to couple the plurality of cuffs to one another.

212. **(Withdrawn)** The system of claim 211, wherein the connector is coupled to the second layer of each of the plurality of cuffs.

213. **(Withdrawn)** The system of claim 211, wherein the connector further comprises a conduit coupled between the connector and an opening.

214. **(Withdrawn)** The system of claim 211, wherein at least one of the plurality of cuffs is coupled to the vasculature of a body.

215. **(Withdrawn)** The system of claim 214, wherein at least one of the plurality of cuffs is coupled to an organ in a body.

216. **(Withdrawn)** The system of claim 211 wherein at least one of the plurality of cuffs is configured to engage with at least one set of intercostal arteries.

217. **(Withdrawn)** The system of claim 211 wherein at least one of the plurality of cuffs is configured to engage with at least one set of intercostal veins.

218. **(Withdrawn)** The system of claim 211 wherein at least one of the plurality of cuffs is configured to engage with the ascending aorta.

219. **(Withdrawn)** The system of claim 211 wherein at least one of the plurality of cuffs is configured to engage with the descending aorta.

220. **(Withdrawn)** The system of claim 211, wherein plurality of cuffs are configured to engage with the superior vena cava.

221. **(Withdrawn)** The system of claim 211, wherein plurality of cuffs are configured to engage with the inferior vena cava.

222. **(Withdrawn)** The system of claim 211, wherein each of the plurality of cuffs is repeatably configurable between an uninstalled configuration and an installed configuration.

223. **(Withdrawn)** The system of claim 222 wherein the second layer of each of the plurality of cuffs further comprises at least one pair of cooperative fastening elements.

224. **(Withdrawn)** The system of claim 223 wherein when a cuff is in the uninstalled configuration the at least one pair of cooperative fastening elements are uncoupled.

225. **(Withdrawn)** The system of claim 223 wherein when a cuff is in the installed configuration the at least one pair of cooperative fastening elements are coupled.

226. **(Withdrawn)** The system of claim 223 wherein one of the fastening elements in the at least one pair of cooperative fastening elements comprises a plurality of fastening positions such that the size of the cuff in the installed configuration may be adjusted by changing to which of said plurality of fastening positions the other fastening element is coupled.

227. **(Withdrawn)** The system of claim 211 wherein the second layer of each of the plurality of cuffs includes a first end and a second end, said first end and said second end configured to be removeably coupled such that the cuff is reconfigurable between an uninstalled configuration in which the first and second ends are separate and an installed configuration in which the first and second ends are coupled.

228. **(Withdrawn)** The system of claim 211 further comprising:

a pump in communication with the connector; and

a controller for providing control signals to the pump in response to triggering signals from a cardiac cycle.

229. **(Withdrawn)** The system of claim 228 configured so that each of the plurality of cuffs is operated sequentially.

230. **(Withdrawn)** The system of claim 228 configured so that each of the plurality of cuffs is operated simultaneously.

231. **(Withdrawn)** The system of claim 228 configured so that each of the plurality of cuffs is operated to augment blood flow in the internal vasculature in a counterpulsation mode.

232. **(Withdrawn)** The system of claim 228 configured so that each of the plurality of cuffs is operated to augment blood flow in the internal vasculature in a copulsation mode.